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A behavioral observation study of Turkish drivers' and children's safety belt use

Bryan E. Porter^a*, Timo Lajunen^b, Türker Özkan^b, Kelli England Will^c

^a*Old Dominion University, Department of Psychology, Norfolk, Virginia, U.S.A.*

^b*Middle East Technical University, Department of Psychology, Ankara, Turkey*

^c*Eastern Virginia Medical School, Division of Community Health and Research, Norfolk, Virginia, U.S.A.*

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Abstract

Researchers focused on child restraint use in vehicles travelling along Turkish roadways. Field observations occurred at 1.5 - 2 hour intervals during daylight hours between 1130 and 1930 in January 2009. Overall, 1,423 vehicles with children 8 years old and younger were observed completely. Drivers' belt use was 52.1%. Children's use rate (over all age categories and restraint systems) was even lower at 29.4%. Unfortunately, 29.4% of these vehicles also had a child riding on another occupant's lap. The findings supported researchers' concerns that children are at risk for traffic crash injuries and fatalities in Turkey, and that occupant protection intervention should be strengthened and evaluated among this country's population.

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1. Introduction

Worldwide, traffic crashes are the 15th leading cause of death for children from birth to age 4, and the 2nd leading cause for 5 – 15 year olds (World Health Organization [WHO], 2009). One effective preventative behavior that reduces the risk of traffic fatality is wearing proper safety restraints (Evans, 1996), and the responsibility for getting children restrained typically falls upon parents and guardians. Countries with low safety belt use rates are those which may have particularly low child restraint use rates, too, which could contribute to higher fatality rates. Turkey is one such country of interest. According to data reviewed by WHO (2009), the safety belt use rate in Turkey is 70% on inter-city roadways but perhaps as low as 20% in urban areas. These rates are particularly low and indicate a likely risk for young passengers.

Based on WHO estimates, and anecdotal evidence that, indeed, children were often unrestrained in Turkish vehicles, the authors became interested in further documenting restraint use in Turkey. This study was designed as a preliminary, field observational effort to document primarily (a) driver belt use (as drivers' use is often a correlate of passengers'; Nambisan & Vasudevan, 2007), (b) children's use rate, and (c) the prevalence of children riding on laps

* Bryan E. Porter. Tel.: +1-757-683-4458; fax: +1-757-683-5087.

E-mail address: bporter@odu.edu.

of other passengers. Relationships among these variable were also explored. Children aged 8 and younger were the focus of this study.

2. Methods

2.1. Participants

In all, data collectors observed 1,515 vehicles with children aged 8 and younger. Complete data were obtained for 1,423 of them, giving the completion rate as 93.9%. This rate was acceptable given the number of variables to observe in free-flowing traffic.

More than 85% of the vehicles were passenger cars (85.8%), with the remainder split among vans, four-wheel drive vehicles, and pickup trucks. The majority of vehicles had only one child passenger (77.4%), with two children representing an additional 18.5% of the observations.

Men drove most of the vehicles (77.1%). The majority of drivers were estimated to be between 30 and 59 years old (72.7%). Children's ages were distributed as follows: 0 - 1 year (18.1%); 1 - 4 years (40.8%); and 4 - 8 years (41.2%).

2.2. Measures

Researchers used an observation sheet to record the following variables: (a) descriptives such as driver sex and age, number of children and children's ages, vehicle type, and presence of a child seat; and (b) main dependent variables such as driver belt use, child passenger restraint use (belt or harness), child seating position (front or back), and whether the child was sitting on another's lap.

2.3. Procedures

Researchers recruited students from a psychology course at Middle East Technical University to collect field data. They were given an overview of the observation protocol and were asked to select a convenience sample of intersections for observation. Data collectors worked at more than 10 different roadways in Turkey. Students collected data for 90 minute to two-hour intervals during daylight hours between 1130 and 1930 in January 2009.

3. Results

Only 24.5% of the 1,423 vehicles with children 8 and younger had a child seat or booster seat. Use rate of a safety belt or harness was also low: 29.4%. Further, 29.4% of the vehicles had at least one child passenger sitting on another occupant's lap. However, on a positive note, 77.0% of the children in observed vehicles were sitting in the back seat as best practices advise for safety (although seating position works best when appropriate restraints are used, which in this study was not the case most of the time; Durbin, Chen, Smith, Elliott, & Winston, 2005). Safety restraint use for adults was low, but higher than their child passengers. Drivers' belt use was 52.1%.

Authors explored relationships among these key variables. Resulting Phi (Φ) correlations are presented in Table 1. The largest relationship was between the presence of a child seat and the child using a belt or harness, $\Phi = .60, p < .01$. The second largest relationship was between a driver using a safety belt and the child passenger using a belt or harness, $\Phi = .34, p < .01$.

Children riding on an occupant's lap were more likely to be in a vehicle that did *not* having a child safety seat. Interestingly, the number of children (1 vs. 2 or more) was not related to riding on laps. Researchers also found female drivers were more likely to have child passengers using a belt or harness and less likely to have children riding on another occupant's lap.

Table 1. Phi Correlations Among Key Variables

Variable	1	2	3	4	5
1. Was there a child seat? (yes vs. no)	1.00				
2. Was child using a belt/harness? (yes vs. no)	.60	1.00			
3. Was child sitting on lap? (yes vs. no)	-.30	-.31	1.00		
4. Was driver using belt? (yes vs. no)	.31	.34	-.10	1.00	
5. Driver's sex (male vs. female)	-.25	-.25	.11	-.20	1.00
6. Number of children (1 vs. 2 or more)	.10	.07	-.05	.06	-.03

Note: **Bold** = $p < .01$; *italics* = $p < .05$. $N = 1,423$.

4. Conclusions and Discussion

This preliminary effort documented that there was low belt use among drivers in Turkish vehicles, and even lower use by the most vulnerable occupants: children. Researchers found relationships among key variables, including children's use rate was related to their drivers'. Further, use rates tended to be higher when females were driving as opposed to males.

The authors recommend replicating these findings with a larger observation protocol with stratified sampling of roadways (much like Eby, Bingham, Vivoda & Ragunathan [2005] did to determine booster seat use in Michigan, U.S.A.). Such a design would allow a more generalizeable estimate of Turkish child passengers' belt or harness use rates in relation to their drivers'. Such a design would also provide baseline data to compare changes over time due to large-scale interventions.

In addition, authors recommend designing studies to explore reasons for lack of restraint use – by both drivers and their child passengers. Work with family focus groups may be useful to identify habits of belt use, understanding of child safety seats and booster seats, and suggestions for interventions to increase use rates in Turkey.

Finally, the authors clearly acknowledge that interventions are needed in Turkey to increase safety restraint use in adults and children. While these interventions will be guided by additional studies such as those recommended here, researchers and policy makers should begin planning how to disseminate and evaluate interventions to be developed. Further, these same groups should look closely at what interventions currently exist in Turkey and evaluate how these programs can be improved (or re-invigorated) to increase use rates among vehicle occupants.

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